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ABSTRACT

0026 A method for forming a liquid crystal on silicon (LCOS) display spacer and groove in a multi-step etching process including providing silicon substrate including a first overlying dielectric insulating layer and metal pixel electrodes; forming a second dielectric insulating layer over the metal pixel electrodes; forming a hardmask layer over the second dielectric insulating layer; photolithographically patterning a resist layer formed over the hardmask layer and plasma etching the hardmask layer to form an etching mask for etching spacers in the second dielectric insulating layer; carrying out a first plasma etching process to form spacers; removing remaining resist layer portions and polymer etching residues over the process surface; and, carrying out a second plasma etching process to etch grooves between metal pixel electrodes adjacent the spacers.